7 September 2005
P8186US

WE CLAIM

1. Sealing arrangement for hydraulic pistons or piston rods, comprising a U-cup (3) of a viscoplastic synthetic material, a stationary machine part (2) and a movable machine part (1) with an outer radius R, wherein the U-cup (3) is disposed as a contacting joint under radial prestress between the stationary machine part (2) and the movable machine part (1) in a profiled section of the stationary machine part (2), wherein the U-cup has a radially outer and a radially inner sealing lip (6, 7) on the high-pressure side, wherein the stationary and the movable machine parts (2, 1) are separated on the low-pressure side by a sealing gap (15) of a sealing gap width B, wherein an abutment surface (13) of the U-cup (3) abuts a radially oriented region (14) of the profiled section on the low-pressure side, wherein the U-cup (3) has an inner radius and an outer radius, wherein both in the unpressurized state and in the pressurized state, the inner radius of the U-cup (3) in the region of the abutment surface (13) is larger than the sum of R and B and wherein the U-cup (3) comprises an inner surface (24) facing the movable machine part (1), characterized in that the inner surface (24) comprises several lubrication bore reliefs formed as recesses (25) in the inner surface (24) of the U-cup, wherein the recesses each extend in an axial direction from the low pressure side N of the U-cup towards the inner sealing lip, and the radial depth of the individual recesses (25) decreases from the low-pressure side N of the U-cup (3) towards the inner sealing lip (7).

2. Sealing arrangement according to claim 1, characterized in that in the unpressurized state, the inner radius of the U-cup (3) decreases, in particular continuously, from the low-pressure side N towards the inner sealing lip (7) in a region around the abutment surface (13).

3. Sealing arrangement according to claim 2, characterized in that in the unpressurized state, the inner radius of the U-cup (3) decreases continuously, in particular like a cone, from the low-pressure side N towards the inner sealing lip (7) in a region from the abutment surface (13) to the inner sealing lip (7).

4. Sealing arrangement according to claim 1, characterized in that in the unpressurized state, an outer edge (18) of the U-cup (3) is formed convex, in particular like a circular arc, in a region facing the sealing gap (15).

5. Sealing arrangement according to claim 1, characterized in that the U-cup (3) has an outer surface (21) facing away from the movable machine part (1), wherein the outer surface (21) is curved concavely in the unpressurized state.

6. Sealing arrangement according to claim 1, characterized in that in the unpressurized state, the outer radius of the U-cup (3) increases, in particular continuously, from the low-pressure side N towards the outer sealing lip (6) in a region around the abutment surface (13).

7. Sealing arrangement according to claim 1, characterized in that the U-cup (3) has an outer surface (21) facing away from the movable machine part (1), and that in the unpressurized state, an outer edge (20) of the U-cup (3) is formed convex, in particular like a circular arc in the transition region of abutment surface (13) and outer surface (21).

8. Sealing arrangement according to claim 1, characterized in that the U-cup (3) has an inner surface (24) facing the movable machine part (1), and the inner surface (24) has microstructures, in particular, spherical calottes.